## Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

Claim 1 (currently amended): A method for providing authentication in a virtual private network having ~~an~~ a first AAA server, the method comprising:

receiving a request from a remote user for connection with a virtual private network at a virtual home gateway, said virtual home gateway in communication with a second AAA server which is not located within said virtual private network ~~said virtual home gateway in communication with a plurality of virtual private networks~~;

associating the remote user with the virtual private network, at the virtual home gateway;

performing a lookup of the address of the first AAA server at the virtual home gateway;

sending a request to authenticate the remote user with said virtual private network from the virtual home gateway to the first AAA server located within said virtual private network; and

connecting the remote user to the virtual private network if the first AAA server authenticates the user; and

sending accounting information directly to the first and second AAA servers;

wherein authentication of the remote user is performed without contacting ~~an~~ the second AAA server associated with the virtual home gateway.

Claim 2 (original):    The method of claim 1 wherein associating the remote user comprises receiving a virtual private network ID and address of an AAA server of the virtual private network.

Claim 3 (original):    The method of claim 2 wherein the virtual private network ID binds a profile of the virtual private network to a routing table of the virtual home gateway.

Claim 4 (original):    The method of claim 1 wherein associating the remote user comprises sending a request to a service provider AAA server to authorize the remote user.

Claim 5 (original):    The method of claim 4 wherein the service provider AAA server contains the address of the virtual private network's AAA server.

Claim 6 (original):    The method of claim 1 wherein sending a request to authenticate the remote user comprises routing the request using a customer routing table of the virtual private network.

Claim 7 (original):    The method of claim 1 wherein connecting the remote user to the virtual private network comprises setting up a PPP session for the remote user.

Claim 8 (original):    The method of claim 1 further comprising sending an accounting request to the virtual private network's AAA server.

Claim 9 (original):    The method of claim 8 further comprising sending an accounting request to the service provider's AAA server.

Claim 10 (previously presented):  The method of claim 9 wherein accounting information sent to the virtual private network's AAA server is different than accounting information sent to the service provider's AAA server.

Claim 11 (original):    The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a domain name.

Claim 12 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a dial-up phone number.

Claim 13 (original): The method of claim 1 wherein associating a remote user with the virtual private network comprises identifying the virtual private network based on a circuit ID.

Claim 14 (currently amended): A computer program product for providing authentication in a virtual private network having an a first AAA server, the product comprising:

code that receives a request from a remote user for connection with a virtual private network at a virtual home gateway, said virtual home gateway in communication with a second AAA server which is not located within said plurality of virtual private network networks;

code that associates the remote user with the virtual private network, at the virtual home gateway;

code that performs a lookup for an address of the first AAA server at the virtual home gateway;

code that sends a request to authenticate the remote user with said virtual private network from the virtual home gateway to the first AAA server located within said virtual private network;

code that connects the remote user to the virtual private network if the first AAA server authenticates the user;

code that sends accounting information directly to the first and second AAA servers; and

a computer-readable storage medium for storing the codes;

wherein authentication of the remote user is preformed without contacting an the second AAA server associated with the virtual home gateway.

Claim 15 (original):   The product of claim 14 further comprising code that requests a service provider AAA server to authorize a remote user.

Claim 16 (original):   The product of claim 14 further comprising code that sends accounting requests to the virtual private network AAA server.

Claim 17 (original):   The product of claim 14 further comprising code that binds a profile of the virtual private network to a routing table of the virtual home gateway.

Claim 18 (currently amended):      A system for providing authentication in a virtual private network having an a first AAA server, the system comprising:
a virtual home gateway configured to receive requests from a remote user for connection with one of a plurality of virtual private networks in communication with the virtual home gateway, send a request to authenticate the remote user to the AAA server located within the virtual private network, and connect the remote user to the virtual private network, said virtual home gateway in communication with a second AAA server which is not located within said virtual private network;
a database for storing the address addresses of the first virtual private network AAA server servers; and
a processor operable to look up the address of the virtual private network AAA server based on information received from the remote user so that authentication is performed directly between the virtual home gateway and the virtual private network AAA server without contacting the second AAA server associated with the virtual home gateway.

Claim 19 (original):   The system of claim 18 wherein the information received from the remote user is a circuit ID.

Claim 20 (original):  The system of claim 18 wherein the information received from the remote user is domain name.

Claim 21 (original):  The system of claim 18 wherein the information received from the remote user is a dial-up phone number.

Claim 22 (original):  The system of claim 18 further comprising a service provider AAA server coupled to the virtual home gateway and configured to authorize the remote user.

Claim 23 (original):  The system of claim 18 wherein the database includes virtual private network IDs used to bind virtual private network profiles to a routing table of the virtual home gateway.

Claim 24 (original):  The system of claim 23 wherein the virtual home gateway comprises a plurality of routing tables corresponding to different virtual private networks.

Claim 25 (currently amended):  A system for providing authentication in a virtual private network having an AAA server, the system comprising:

means for receiving a request from a remote user for connection with a virtual private network at a virtual home gateway, said virtual home gateway in communication with a second AAA server which is not located within said plurality of virtual private network networks;

means for associating the remote user with the virtual private network, at the virtual home gateway;

means for performing a lookup for an address of the first AAA server at the virtual home gateway;

means for sending a request to authenticate the remote user <u>with said virtual private</u>
<u>network</u> from the virtual home gateway to the <u>first</u> AAA server located within the virtual
private network; ~~and~~

means for connecting the remote user to the virtual private network if the <u>first</u> AAA
server authenticates the user<u>; and</u>

<u>means for sending accounting information directly to the first and second AAA</u>
<u>servers;</u>

wherein authentication of said remote user is performed without contacting ~~an~~ <u>the</u>
AAA server associated with the virtual home gateway.

Claim 26 (previously presented): The system of claim 25 wherein means for
associating the remote user comprises means for receiving a virtual private network ID and
address of an AAA server of the virtual private network.

Claim 27 (previously presented): The system of claim 25 wherein means for
associating the remote user comprises means for sending a request to a service provider
AAA server to authorize the remote user.

Claim 28 (previously presented): The system of claim 27 wherein the service
provider AAA server contains the address of the virtual private network's AAA server.